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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/343,334 | 06/30/1999 | GREGG M. SKLEDAR | T-5586CIP | 7812 |

7590 10/01/2002

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| ART UNIT | PAPER NUMBER |
|---|---|
| 1764 | 20 |

DATE MAILED: 10/01/2002

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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 20

Application Number: 09/343,334
Filing Date: June 30, 1999
Appellant(s): SKLEDAR ET AL.

Raymund F. Eich
For Appellant



**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 8, 2002.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

*(3) Status of Claims*

The statement of the status of the claims contained in the brief is correct.

*(4) Status of Amendments After Final*

No amendment after final has been filed.

*(5) Summary of Invention*

The summary of invention contained in the brief is correct.

*(6) Issues*

The appellants' statement of the issues in the brief is correct.

*(7) Grouping of Claims*

Appellants' brief includes a statement that the claims in the following separate groups: a) claims 1-4; b) claims 5-8 and 27; c) claims 9-12 and 28; d) 13-24; e) 25; and f) 26 stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

*(9) Prior Art of Record*

| | | |
|---|---|---|
| 5,276,227 | Wu et al. | 1-1994 |
| 3,113,167 | Sauer | 12-1963 |
| 4,282,392 | Cupples et al. | 8-1981 |
| 2,980,603 | Van Dyck Fear | 4-1961 |

*(8) Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

*(10) Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claims 13-24 stand rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al.(5,276,227).

Appellants are claiming a high oxidative stability polyalphaolefin which has bromine index of less than 200 mg per 100 gram sample of polyalphaolefin. The dependent claims include limitations directed at narrower Bromine Index ranges.

The reference of Wu et al.(5,276,227) discloses a polyalphaolefin with a Bromine number less than 4 (e.g. 0-4). See column 3, lines 50-51. Since the Bromine Index is equal to 1000 times the Bromine Number, the reference of Wu et al.(5,276,227) succeeds in disclosing a polyalphaolefin with a Bromine Index of 0 to 4000 mg of bromine per 100 g.

Since the teachings of the reference encompass polyalphaolefins with Bromine Index ranges less than 200, appellants' polyalphaolefin product is anticipated by the reference of Wu et al.(5,276,227).

In addition, the intended use limitations in claims 17-24 do not carry patentable weight because they do not further limit the physical structure of the claimed composition. It has been held that a recitation with respect to the manner in which a claimed apparatus (composition) is intended to be employed does not differentiate from a prior art apparatus(composition) that teaches all the structural limitations. Ex Parte Masham, 2 USPQ 2d 1647 (Bd. Pat. App. & Inter. 1987).

Claims 1-8, 10-12 and 27 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sauer (3,113,167) in view of Wu et al.(5,276,227).

Appellants are claiming a method of making a high oxidative stability polyalphaolefin. The process of making comprises hydrogenating a polyalphaolefin to a level of hydrogenation in which a Bromine Index of less than 200 mg per 100 gram sample of polyalphaolefin is achieved.

In the dependent claims, appellants include limitations directed at an additional distilling step and narrower Bromine Index ranges.

The reference of Sauer (3,113,167) discloses a process for the production of polyalphaolefins. See column 7, lines 43-45. The process involves a distillation step followed by a polymer hydrogenation step. See column 8, lines 43-45.

The reference of Sauer (3,113,167) succeeds at disclosing a process for the production of polyalphaolefins with steps corresponding to appellants' claimed initial distillation step and hydrogenation step.

A difference is noted between appellants' process and the teachings of Sauer (3,113,167). The reference is silent about hydrogenating to a Bromine Index less than 200.

The reference of Wu et al.(5,276,227) discloses a polyalphaolefin with a Bromine number less than 4 (e.g. 0-4). See column 3, lines 50-51. Since the Bromine Index is equal to 1000 times the Bromine Number, the reference of Wu et al.(5,276,227) succeeds in disclosing a polyalphaolefin with a Bromine Index of 0 to 4000 mg of bromine per 100 g. The reference further teaches that it is known that products of low unsaturation, as characterized by a low Bromine Number less than 4, have desirable viscosity properties. See column 3, lines 35-65.

Wu et al.(5,276,227) succeeds at disclosing a Bromine Index overlapping that claimed by appellants. In addition, the reference also succeeds in disclosing the concept that products of low unsaturation are desirable.

Since the reference does not limit the Bromine Index of the polyalphaolefin product, it would have been obvious to one of ordinary skill in the art at the time the invention was made to hydrogenate to a low Bromine Index level in the Sauer process, including the Bromine Index range claimed by appellants, because the reference of Wu et al.(5,267,227) illustrates that low Bromine Indexes overlapping those claimed by appellants are desirable.

Claims 1-4, 6-12, 26 and 28 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cupples et al.(4,282,392) in view of Wu et al.(5,276,227) .

Appellants are claiming a method of making a high oxidative stability polyalphaolefin. The process of making comprises hydrogenating a polyalphaolefin to a level of hydrogenation in which a Bromine Index of less than 200 mg per 100 gram sample of polyalphaolefin is achieved. In the dependent claims, appellants include limitations directed at an additional distilling step and narrower Bromine Index ranges.

The reference of Cupples et al.(4,282,392) discloses a process for the production of alphaolefin oligomers (e.g. polyalphaolefins). See column 1, lines 11-15. The process involves a hydrogenation step followed by a distillation step. See column 4, lines 4-5 and column 7, lines 20-55. The hydrogenation step is accomplished at pressures between 200 and 2000 psi. See column 4, lines 23-25.

The reference of Cupples et al.(4,282,392) succeeds at disclosing a process for the production of polyalphaolefins with steps corresponding to appellants' claimed hydrogenation and distillation steps.

Several differences are noted between appellants' process and the teachings of Cupples et al.(4,282,392). The reference is silent about hydrogenating to a Bromine Index less than 200. In addition, the reference does not disclose appellants' final hydrogenation step in claim 28.

The reference of Wu et al.(5,276,227) discloses a polyalphaolefin with a Bromine number less than 4 (e.g. 0-4). See column 3, lines 50-51. Since the Bromine Index is equal to 1000 times the Bromine Number, the reference of Wu et al.(5,276,227) succeeds in disclosing a polyalphaolefin with a Bromine Index of 0 to 4000 mg of bromine per 100 g. The reference further teaches that it is known that products of low unsaturation, as characterized by a low Bromine Number less than 4, have desirable properties. See column 3, lines 35-65. It also

discloses that a hydrogenation (i.e. saturation) is required if the product has an averaged molecular weight of less than 4000. See column 3, lines 46-55.

Wu et al.(5,276,227) succeeds at disclosing a Bromine Index overlapping that claimed by appellants. In addition, the reference also discloses the concept that products of low unsaturation are desirable.

The reference of Wu et al.(5,276,227) also succeeds in disclosing the concept that hydrogenation is required to obtain a desired level of saturation in alphaolefin oligomers as indicated by a low Bromine Index when the product has a number averaged molecular weight of lower than 4000. The reference's disclosure illustrates that it is within the level of ordinary skill in the art to select whether or not to perform a hydrogenation step to achieve a desired Bromine Index.

Since the reference does not limit the Bromine Index of the polyalphaolefin product, it would have been obvious to one of ordinary skill in the art at the time the invention was made to hydrogenate to a low Bromine Index level in the Cupples et al.(4,282,392) process, including the Bromine Index range claimed by appellants, because the reference of Wu et al.(5,267,227) illustrates that low Bromine Indexes overlapping those claimed by appellants are desirable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an additional final hydrogenation step in the process of Cupples et al.(4,282,392) if a final product with a number averaged molecular weight of less than 4000 with a correspondingly high Bromine number is obtained because the reference of Wu et al.(5,276,227) illustrates that it is known to perform a hydrogenation step on a polyalphaolefin oligomer with a low molecular weight in order to obtain a desirable lower Bromine Index. Appellants have not shown anything unexpected by performing an additional step which is known to lower the Bromine number and increase the number average molecular weight to a desired level.

Claim 25 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Cupples et al.(4,282,392) in view of Wu et al.(5,276,227) as applied to claims 1-4, 6-12, 26 and 28 above and/or claims 1-8, 10-12 and 27 as applied to Sauer (3,113,167) in view of Wu et al.(5,276,227) above, and further in view of Van Dyck Fear (2,980,603).

A difference is noted between the references of Cupples et al.(4,282,392) and/or Sauer (3,113,167) and appellants' claimed invention. The references do not disclose the use of diphenylamine as an antioxidant.

The reference of Van Dyck Fear (2,980,603) teaches that diphenyl amine is a known antioxidant additive for lubricating oil. See column 5, lines 44-46.

It would have been obvious to one of ordinary skill in the art desiring to increase the oxidative stability of the lubricating oil produced by the reference of Cupples et al.(4,282,392) and/or Sauer (3,113,167) to add diphenyl amine to the polyalphaolefin product because the reference of Van Dyck Fear (2,980,603) teaches that it is known in the art to add diphenyl amine in order to increase the oxidative stability. Appellants have not shown anything unexpected with respect to adding a known antioxidant in the form of diphenyl amine to prepare an oxidatively stable composition.

***(11) Response to Argument***

Appellants' arguments that the reference of Wu et al. (5,276,227) does not disclose every element of the claim because it discloses a Bromine Index determined by the ASTM-D method as opposed to appellants' K801 method is not persuasive in overcoming the rejection. In response, it is maintained that the reference of Wu et al. (5,276,227) succeeds at disclosing a polyalphaolefin composition with a Bromine Index overlapping that claimed by appellants. Appellants' arguments appear to be an attempt to discredit the teachings of the reference by

maintaining that the disclosed Bromine Number does not reflect an accurate measurement of the bromine index. Appellants' arguments include the premise that Wu et al. (5,276,277) test the bromine number by the ASTM-D testing method. However, it is pointed out that the reference is completely silent regarding the method of testing used to determine the disclosed Bromine Number. Furthermore, the teachings of the reference are given full faith with respect to accuracy. Since the reference discloses a bromine number of less than 4 (e.g. 0-4), it encompasses a bromine index of 0-4000 mg. For purposes of clarity, the definition of bromine number is the number of grams of a sample that react with bromine and the definition of bromine index is the number of milligrams of a sample that will react with bromine. As a result, it can be seen that the bromine index is exactly 1000 times the bromine number. Appellants have not successfully shown that the composition of Wu et al. (5,276,227) is different from their final composition.

Appellants' argument that Wu et al. (5,276,227) does not disclose an overlapping bromine index range is not persuasive in overcoming the rejection. In response, it is maintained that the reference discloses a bromine number of less than 4 (e.g. 0-4). Such a range encompasses a bromine index range of 0-4000 mg (clearly overlapping appellants' 200mg). The overlapping range anticipates appellants' range.

Appellants' arguments referring to the reference of Gunsel are not persuasive in overcoming the pending rejection because Gunsel is not at issue because it is not applied in any of the pending rejections.

In addition, appellants' argument that Wu et al. (5,276,227) would not motivate one skilled in the art to hydrogenate to appellants' level because it does not provide any insight to weigh the costs and benefits are not persuasive. It is maintained that proper motivation to

accomplish hydrogenation to obtain appellants' bromine index can be derived from Wu et al.'s teaching that it is known that products of low unsaturation have desirable properties such as desirable viscosity properties. One of ordinary skill viewing the process of Sauer (3,113,167) or Cupples et al. (4,282,392) would be motivated to hydrogenate to a level of 0-4 Bromine number because Wu et al. (5,276,227) illustrates that polyalphaolefins in such a range have desirable viscosity properties.

Appellants' arguments asserting that the reference of Cupples et al.(4,282,332) does not disclose distilling prior to hydrogenation are not persuasive in overcoming the rejection. In response, it is maintained that the modified teachings of Cupples et al.(4,282,332) provide motivation to include an additional final hydrogenation step. As a result, the process resulting from the modification of the primary reference includes the sequence of hydrogenation, distillation and a second final hydrogenation step. One of ordinary skill would be motivated to perform the additional final hydrogenation step to obtain a desired degree of low unsaturation as suggested by the secondary reference of Wu et al.(5,276,227).

Appellants' arguments asserting that the applied references do not teach appellants' lube oxidator levels are not sufficient to distinguish over the applied art. It is maintained that the lube oxidator level is directly proportional to the bromine index because there is a direct relation between the degree of saturation (as reflected by the bromine index) and oxidative stability. Since the pending rejections encompass appellants' bromine index, they are considered to correspondingly encompass appellants' oxidative stability since the two properties are directly related.

In conclusion, appellants have not successfully shown that their claimed composition is physically different from the composition disclosed by Wu et al. (5,276,227). In addition, appellants' arguments are not sufficient to distinguish the claimed method of making over the applied art because such arguments are not successful in showing that the motivation to hydrogenate to appellants' claimed level is faulty.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

N.N.
September 24, 2002

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